

BELLCOMM, INC.

SUBJECT: Trip Report - Cape Requirements
Meeting for AS-205 Experiments -
June 28-29, 1966 - Case 340

DATE: July 26, 1966

FROM: S. L. Penn

ABSTRACT

A meeting was held at KSC to determine the Cape requirements for support of experiments on AS-205. Topics covered are listed, and a schedule for testing the experiments is presented and discussed.

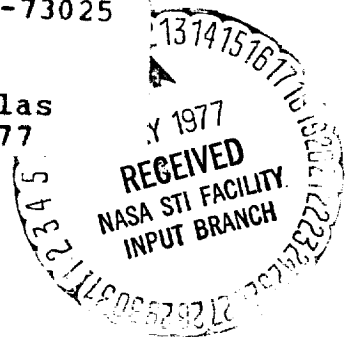
~~TOP SECRET~~
(NASA-CR-153367) TRIP REPORT: CAPE
REQUIREMENTS MEETING FOR AS-205 EXPERIMENTS,
28-29 JUNE 1966 (Bellcomm, Inc.) 9 p

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MEMORANDUM FOR FILE

A meeting was held at KSC on June 28-29, 1966, to establish the detail Cape integration and checkout requirements for the experiments on Apollo Spacecraft 014 (Flight AS-205) and for two key supporting items, the Medical Data Acquisition System (MDAS) and the airlock. The experiments currently assigned to spacecraft 014 are:

M004 In-flight Phonocardiogram
M005 Bioassays Body Fluids
M007 Calcium Balance Study
M009 Human Otolith Function
M012 Exercise Ergometer
M019 Metabolic Rate Measurement
M020 Pulmonary Function
S015 Zero G - Single Human Cells
S016 Trapped Particles Asymmetry
S017 X-Ray Astronomy
S018 Micrometeorite Collection
T004 Frog Otolith Function

Principal investigators, along with MSC technical monitors, briefed the KSC people on the nature of the experiments and status of the equipment and then discussed the experiments' requirements in the following areas:

- a. Preinstallation testing
- b. Functional tests (in spacecraft)
- c. Documentation

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- d. Launch scrub procedures
- e. Special KSC facilities
- f. Special training
- g. Maintenance
- h. Security and pad access
- i. Data and calibration
- j. KSC in-flight and postflight support
- k. Personnel

The subject of experiment testing occupied a major share of the meeting. The general goal of this testing at KSC is to operate the experiment a sufficient number of times to assure its being in working order on launch day, and to provide the crew and support personnel and, in some cases, the investigators with additional or initial training as appropriate. The test schedule established would determine in large measure just when experiment hardware had to be at the Cape and in what form (e.g., flight unit or qual unit). A chart was presented which outlined the four month activities schedule that a spacecraft follows from its arrival at the Cape to the time of launch. From the chart those spacecraft tests which were also suitable occasions for experiment testing were identified. The accompanying table is the agreed upon first cut at a KSC experiments test schedule. While it is not planned to test every experiment at every opportunity, those spacecraft tests which the table shows as still uncommitted are available for experiment testing as needed (e.g., as unforeseen problems arise).

A few items of note from the table are:

1. M009 is the only experiment not planned for testing in the Simulated Altitude Run, due to uncertainty as to spacecraft lighting level for that test. For this experiment all outside light must be excluded from the spacecraft.
2. Altitude Chamber Run #1 could be the first vacuum test of an integrated airlock.
3. While Plugs In and Out tests turned out to be seldom needed, they will serve as backup test opportunities. M012, however, is scheduled for Plugs Out, to allow maximum in- situ crew testing.

4. Count Down Demonstration Test is a dry run of the launch. Those experiments requiring last day activities or checkout get exercised here (MOO4 exception is not significant) just as they will at launch time. However, the re-preparation time, after test, of a fully loaded SO15 flight unit is so long that a qual unit must be used at CDDT to assure having two fully loaded flight units ready at launch. Lack of inclusion of most medical experiments in CDDT and launch count merely means that they'll be ready to go without late service.

S. L. Penn

S. L. Penn

1011-SLP-skC

Attachment

Test Schedule for AS-205 In-Flight Experiments

Copy to

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TEST SCHEDULE FOR AS-205 IN-FLIGHT EXPERIMENTS

S/C Test	Days Before Launch (Approx)	M005				M019				M019				M019			
		M004	M007	M009	M012	M020	MDAS ⁽¹⁾	Airlock ⁽²⁾	S015 ⁽³⁾	S016	S018	S017	T004 ⁽³⁾				
S/A ⁽⁴⁾ Run (Crew)	T-77	X	X		X	X	X	X	X,E	X	X	X	X				
A/C ⁽⁵⁾ Run ^{#1} (UNMD)	T-75	X					X	X									
A/C ⁽⁵⁾ Run ^{#2} (Crew)	T-71	X	X	X	X	X	X	X	X,F ^{#1}	X	X	X	X,Q,L				
A/C ⁽⁵⁾ Run ^{#3} (Backup Crew)	T-69	X	X		X	X	X	X	X,F ^{#2}	X	X						
SIM Flight ⁽⁶⁾	T-49	X					X	X									
Plugs In ⁽⁷⁾	T-30							X									
Plugs Out ⁽⁸⁾ (Crew)	T-27				X			X									
CDDT ⁽⁹⁾	T-16	X					X	X	X,Q	X	X	X	X,F,L				
FL Read Test	T-13	X	X	X	X	X	X	X									
Launch Count		X					X	X	X	X	X	X	X,F,L				

(1) Provides timer, power, and recorder for medical experiments

(2) Required for operation of S016 and S018

(3) E = empty-no cells
F = flight unit
Q = qual unit
L = live frogs (otherwise simulated frogs)

(4) Simulated altitude - first big milestone for interface check of flight hardware (at KSC)

(5) Altitude Chamber

(6) At the pad (this and succeeding tests); S/C mounted on the L/V, but with GSE power

(7) External power and automatic checkout equipment (ACE)

(8) All internal power

(9) Count Down Demonstration Test - includes RF interference check.

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Bellcomm, Inc.

X.67-70538

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RECOMMENDATION FOR ANNOUNCEMENT AND DISTRIBUTION OF BELLCOMM REPORT

TO: MA-2/Technical Manager, Systems Engineering Support

FROM: Mr. B. F. Brown, Bellcomm, Inc.

TITLE OF REPORT "Trip Report - Cape Requirements Meeting for AS-205 Experiments - June 28-29, 1966"
AUTHOR(S) S. L. Penn
REPORT NO./TYPE Memorandum for File REPORT DATE July 26, 1966
Case No.
CONTRACT NO. NASw-417 TASK NO. 340 SECURITY CLASSIFICATION Unclassified

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B. F. Brown
B. F. BROWN

8/3/66
DATE

NASA DETERMINATION

TO: NASA Representative, NASA Scientific and Technical Information Facility

THRU: Mr. B. F. Brown, Bellcomm, Inc.

FROM: MA-2/Technical Manager, Systems Engineering Support

REF: MA-2 Memorandum dated February 25, 1965, to ATSS, Subject: "Release of Bellcomm, Inc., Reports to Scientific and Technical Information Division."

Pursuant to referenced memorandum, subject report is hereby released with the following restrictions on announcement and distribution:

Restriction Category B

T. A. Keegan
T. A. KEEGAN

8-3-66
DATE

TO: NASA Representative, NASA Scientific and Technical Information Facility,
5001 Calvert Rd, College Park, Md., 20740

FROM: Mr. B. F. Brown, Bellcomm, Inc.

- ☐ Category A report: The foregoing release is forwarded for entering under Category A.
- ☒ Category B, C, or D report: Two copies of the subject report have been attached hereto. One additional copy is being forwarded to the FOB IOB Library.

B. F. Brown
B. F. BROWN

8/16/66
DATE

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